

**ALDEHYDE EMISSION MEASUREMENTS
FROM A NEW HAMPSHIRE
BOILER WHILE BURNING
A BIO-DIESEL/FUEL OIL BLEND**

**REQUEST FOR PROPOSAL
FOR CONTRACT SERVICES**

January 24, 2007

**New Hampshire Department of Environmental Services
Air Resources Division
Compliance Bureau
Testing and Monitoring Section**

TABLE OF CONTENTS

- A. Introduction and Purposes.**
- B. Facility to be tested.**
- C. Testing Program.**
- D. Testing Alternative.**
- E. Program Manager**
- F. Provision of Utilities and Access.**
- G. Proposed Schedule.**
- H. General Fee.**
- I. Agreement and Conditions.**
- J. Insurance and Bond.**
- K. Selection Criteria.**
- L. Checklist for Bidders.**

**ALDEHYDE EMISSION MEASUREMENTS FROM
A NEW HAMPSHIRE COMBUSTION BOILER**

SCOPE OF WORK

A. Introduction and Purpose

The New Hampshire Department of Environmental Services, Air Resources Division (“DES”), wishes to implement a test program to measure aldehyde emissions from a permitted boiler burning a biodiesel/fuel oil blend at St. Paul’s School in Concord, NH. These measurements will be made following EPA-developed stack testing methods for two testing scenarios. Each test scenario will consist of three 1-hour test runs on one boiler at representative operating conditions.

DES and St. Paul’s School will jointly manage and coordinate the testing program. Payment for the testing services outlined in this work program is the sole responsibility of DES.

B. Facility to be Tested

Facility where testing will occur:

St. Paul’s School;

Address: St. Paul’s School
325 Pleasant Street
Concord, NH 03301

Facility contact: Benjamin Jorgensen, L.P.E
Director, Facilities Operations and Engineering

Phone: 603-229-4602

FAX: 603-229-4608

The testing will be conducted on one of the following boilers:

Boiler #1 – B&W 24.82 million BTU/hr nameplate rating,
Boiler #2 – B&W 24.82 million BTU/hr nameplate rating, or
Boiler #3 – B&W 18.4 million BTU/hr nameplate rating.

C. Testing Program

1. The testing will be performed to measure aldehyde emissions from one of the boilers specified above under two operating scenarios.
 - (a) Scenario 1 – High representative load while firing #6 fuel oil;
 - (b) Scenario 2 – High representative load while firing a blend of biodiesel and #6 fuel oil. The blending ratio will be determined prior to the proposed testing period;

2. The EPA test methods that will be conducted shall consist of the following or DES approved methods:
 - 40 CFR 60, Appendix A, Method 1 - Sampling and velocity traverses for stationary sources;
 - 40 CFR 60, Appendix A, Method 2 - Stack gas velocity and volumetric flow rate;
 - 40 CFR 60, Appendix A, Method 3 or 3A - Flue gas analysis for CO₂, O₂, excess air and molecular weight determination;
 - 40 CFR 60, Appendix A, Method 4 - Determination of moisture content: and
 - SW-846, EPA Method 0011 - Sampling for selected aldehyde and ketone emissions
3. Each test will be of compliance quality, following the above EPA methods (three one-hour runs per scenario);
4. The testing to be performed must follow the general requirements of 40 CFR 60.8 as applicable. Additional general requirements shall include, but not be limited to the following:
 - (a) Test equipment shall be calibrated according to the procedures specified in the corresponding EPA test methods;
 - (b) Sampling of emissions shall occur at such location and sampling points so as to provide representative measurements of the actual emissions during facility operation at the time of the test; and
 - (c) The measurement of cyclonic flow conditions shall be verified and documented at each measurement location, according to the procedures outline in 40 CFR Part 60, Appendix A, Method 1, Section 2.4 or Section 2.5. If approved by DES, alternative locations may be chosen if the cyclonics criteria cannot be met.
5. Three representative fuel samples are to be taken by the Contractor as part of the test program and an ultimate analysis (quantitative measurement of the percentages of all elements in the fuel and high heating value) is required to be conducted on each of the three samples. The three samples to be taken are;
 - (a) The biodiesel/#6 fuel oil blend feeding the boiler during the testing;
 - (b) The biodiesel fuel only; and
 - (c) No. 6 fuel oil only.
6. In accordance with the schedule specified in G. below, DES, the Contractor, and St. Paul's School will establish acceptable dates for all parties to participate in the compliance testing. DES will be witnessing the testing.

7. In accordance with the schedule specified in G. below, the Contractor shall submit to DES and St. Paul's School a pre-test protocol with the following information:
 - (a) Complete test program description;
 - (b) Brief description of process to be tested;
 - (c) Description of the operational mode of the process during the testing period. Included should be a discussion of how the biodiesel/fuel oil will be mixed to ensure consistent properties of the fuel feeding the boiler;
 - (d) Process data to be collected – The final list of process data to be collected will be established during the pre-test meeting to be held at St. Paul's School;
 - (e) Test methods to be used;
 - (f) Calibration methods and sample data sheets;
 - (g) Pre-test preparation procedures;
 - (h) Sample collection and analysis methods;
 - (i) Any proposed alternatives or deviations from standard EPA testing methods; and
 - (j) Company name, telephone number and company contact of the Contractor.
8. In accordance with the schedule specified in Section G. below, the Contractor, along with representatives of St. Paul's School and DES shall participate in a pre-test meeting at the facility where details of the test, the testing schedule, operational process conditions, and data to be collected will be finalized. Due to the tight timelines to complete the testing, the pre-test meeting will be held approximately 1-week prior to the scheduled testing date;
9. Within thirty (30) days following completion of testing, the Contractor shall submit a final test report to DES documenting the results of the test. The report shall follow the agreed-upon report format outlined in the pre-test protocol and shall include all the information as described in the pre-test protocol, including the following:
 - (a) All test data collected including process data and test emission results;
 - (b) Calibration data;
 - (c) Process data;
 - (d) A description of any discrepancies or problems that occurred during testing or sample analysis; and

- (e) An explanation of how these problems were treated and their affect on the final results.

D. Testing Alternative

Any proposed alternatives shall be submitted with a justification by the Contractor showing that equivalent results can be obtained as compared to the specified test method or procedures. DES must approve all alternatives prior to their implementation.

E. Program Manager

The program manager for this testing program will be Jack Glenn, Testing and Monitoring Section Supervisor. His contact information is as follows:

Jack C. Glenn
New Hampshire Department of Environmental Services
Air Resources Division
29 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03302-0095
Telephone (603) 271-6546
Fax: (603) 271-1381
e-mail: jglenn@des.state.nh.us

F. Provision of Utilities and Access to Testing Area

Sampling ports will be provided by St. Paul's School. The number, location and diameter of these ports will be determined prior to or during the pretest meeting. A small platform with short ladder access will be available. Electrical service is available in the boiler utility area.

G. Proposed Tentative Schedule

RFP sent out to potential contractors and notice placed in Manchester Union Leader	January 26, 2007
Proposals due by close of business	February 9, 2007
DES to choose contractor	February 16, 2007
DES to submit contract recommendations to Governor and Council	February 22, 2007
Governor and Council Approval	March 8, 2007
DES to award contact	March 12, 2007

Contractor to submit pretest protocol to DES and St. Paul's School	March 23, 2007
Pretest meetings to be held at site	2-hour meeting during business hours: March 28-30, 2007
Testing at Facility	One to two days during the week of April 9-13, 2007
Submissions of final stack test report	May 13, 2007
Review and approval of final report by DES	May 27, 2007
Submissions of four copies of state- approved test report	June 15, 2007

This schedule is preliminary. A final schedule will accompany the notice to proceed. The consultant shall begin performance of the services designated in the contract promptly upon receipt from the DES of notice to proceed.

H. General Fee

DES will pay and the consultant agrees to accept, as full compensation for all services rendered to the satisfaction of DES a fixed fee payment for services. This total contract amount may only be revised when there is a substantial change in the scope or character of the work, and by prior negotiation of a supplemental agreement. The consultant shall include as part of the proposal a fee schedule for revisions or other professional services beyond the scope of the original contract. Such professional services shall include hourly rates, overnight accommodation charges, and additional equipment charges.

I. Agreement and Conditions

The Contractor shall be required to enter into an agreement with conditions with the State of New Hampshire. This agreement is attached as Attachment A to this proposal, [Form Number P-37](#) (05/02), Stock Number 4402.

J. Insurance and Bond

The Contractor shall provide Proof of Insurance with its proposal that conforms to Paragraph 14 of Attachment A.

K. Selection Criteria

Proposals will be judged giving consideration to content, methodology, completeness, technical expertise, cost and any other factor deemed critical to the project's success. Preferential treatment may be given to disadvantaged business enterprise (DBE) or NH based businesses if all other considerations are approximately equivalent.

In the selection process, DES reserves the right to request oral presentations from a "short-list" of consultants. Presenters will be sequestered and be allowed equal opportunity to present.

The final contract and choice of the Contractor must be approved by the NH Governor and Council.

M. Checklist for Bidders

Testing program information as specified in Section C.

Narrative description of proposal.

List of deliverables.

Names and resumes of management and technical personnel.

Price – Breakdown of basic tasks, total fixed fee cost.

Other information showing the capability of the consultant to provide desired service including list of past projects, references, etc.

Information on subcontractors, if applicable, and detailed description of tasks and roles.

Original Certificate of Good Standing from the NH Department of State, Corporate Division.

Certificate of Signature Authority (Will be required if selected).

Certificate of Insurance.